

**I CLAIM:**

- 1           1.     A releasable tubing connector comprising:  
2                 a corner piece; and  
3                 at least one arm attached to said corner piece at a proximal end of the arm,  
4                 and extending away from said corner piece, and having a distal end opposite the  
5                 proximal end, said arm having:  
6                     a central axis extending through the center of the arm and away from  
7                 said corner piece;  
8                     a slice extending to the distal end of said arm and separating the distal  
9                 end of said arm into a first finger portion and a second finger portion; and  
10                 a taper threaded hole centered on the slice,  
11                 wherein:  
12                 the arm is slideably engagable into an end of a length of tubing; and  
13                 a screw may be advanced into the taper threaded hole to spread the first  
14                 finger portion of the arm from the second finger portion of the arm.
2.     The connector of Claim 1, wherein the taper threaded hole is a pipe threaded hole.
3.     The connector of Claim 1, wherein the screw is a taper threaded screw.

4. The connector of Claim 1, wherein the screw is an allen screw.
5. The connector of Claim 1, wherein the screw is a tamper resistant screw.
6. The connector of Claim 1, wherein said tubing has an access hole, wherein when the tubing is positioned on the arm of the tubing connector, the access hole is substantially aligned with the taper threaded hole of the arm.
7. The connector of Claim 1, wherein said tubing is square tubing and the arm has a substantially square cross-section slideably engagable into an end of said square tubing.
8. The connector of Claim 7, wherein a difference between a tubing inside dimension and an arm outside dimension is between approximately 0.015 inches and approximately 0.025 inches.
9. The connector of Claim 7, wherein a difference between a tubing inside dimension and an arm outside dimension is approximately 0.020 inches.
10. The connector of Claim 1, wherein the at least one arm comprises at least two arms.

11. The connector of Claim 1, wherein the at least one arm is between approximately 1.5 inches and approximately 2.5 inches long.
12. The connector of Claim 1, wherein the at least one arm is approximately two inches long.
13. The connector of Claim 1, wherein the at least one arm is between approximately 0.8 inches and approximately one inches across.
14. The connector of Claim 1, wherein the at least one arm is attached to the corner piece by at least two pins.
15. The connector of Claim 14, wherein the at least two pins are coiled spring pins.
16. The connector of Claim 1, wherein the at least one arm has a substantially square cross section having beveled edges.
17. The connector of Claim 1, wherein the at least one arm has faces including reliefs.

1           18.    A structure comprising:

2                   a multiplicity of tubing connectors comprising:

3                           a corner piece; and

4                           at least one arm attached to said corner piece at a proximal end of the  
5 arm, and extending away from said corner piece, and having a distal end opposite  
6 the proximal end, said arm having a central axis, and comprising:

7                                   a slice extending to the distal end of said arm and separating  
8 the distal end of said arm into a first finger portion and a second finger portion; and

9                                   a taper threaded hole approximately centered on the slice and  
10 approximately orthogonal to the central axis,

11                           tubular members connected by the tubing connectors, wherein the tubular  
12 members have tubing ends residing on said arms and having access holes aligned  
13 with the taper threaded holes;

14                           screw residing in the taper threaded hole and spreading the first finger  
15 portion of the arm from the second finger portion of the arm to hold the tubing  
16 securely on the arm.

19.    The connector of Claim 18, wherein the taper threaded hole is a National  
Pipe Taper (NPT) threaded hole, and the screw is an NPT threaded screw.

- 1           20.    A method for assembling a tubular structure, the method comprising:  
2                    sliding a tubing end over an arm of a tubing connector;  
3                    inserting a tool through an access hole in the tubing end; and  
4                    tightening a taper threaded screw residing in a taper threaded hole in the arm  
5           with the tool.